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‘Really Good Stuff’

Title: Improving Knowledge Retention using KEEpad

Word count: 498

Context and setting Didactic lectures are traditional in medicine in an attempt to impart information on problematic topics and introduce difficult concepts. However the type of sustained low-level activity found in lectures does not promote effective learning or retention of knowledge; indeed it has been shown that attention wanes after about 15-20 minutes and knowledge recall following didactic teaching is often only about 20%. Thus knowledge retention following conventional teaching often decays at an undesirable rate.

Why the idea or change was necessary The use of audience response systems (ARSs) has been suggested to improve and facilitate learning in a didactic lecture setting by increasing student participation, giving instant feedback, and improving knowledge retention. An ARS is being used on a Phase 1 Medical Programme to assess prior knowledge, understanding and information decay in first year medical students.

What was done 93 undergraduate medical students attended physiology lectures incorporating the use of the ARS KEEpad. KEEpad was used to ask the students an MCQ before the lecture to assess prior knowledge of some aspects of renal

physiology; at the end of the lecture to assess understanding and thus whether learning had occurred; and 5 weeks later to assess knowledge retention. Ethical permission was not required as the data forms part of anonymised, routinely collected data without harms. At the end of the module students were asked to complete an evaluation form which included 2 questions on the use of KEEpad. The form included a 6-point Likert scale with the descriptors on an even scale, and space for free-text comments. The 2 questions regarding use of the ARS were *The KEEpad audience response system gives me feedback on my progress* and *The KEEpad audience response system supports the learning experience*.

Evaluation of results and impact Before the lecture was delivered 40% of the class selected the correct answer using KEEpad, showing a moderate degree of prior knowledge of this topic. This was expected as the students had been introduced to the concept of Starling forces in cardiovascular physiology and were thus demonstrating an ability to apply the knowledge to a different body system. At this point the correct answer was not given. The same question was then asked at the end of the lecture and the percentage of students choosing the correct answer increased to 79%. Five weeks later the same question was put to the students, again using KEEpad. The percentage of students selecting the correct answer was 60%. This is a 77% recall rate; considerably higher than the literature suggests following conventional didactic lectures. The evaluation forms showed student satisfaction regarding use of KEEpad was 100% and 98% respectively. The use of KEEpad demonstrated that learning occurred during the didactic lecture and that recall rate after 5 weeks was high. Students' satisfaction on the use of KEEpad for feedback and the learning experience

during lectures was extremely high. The audience response system is a useful and low cost tool to improve knowledge retention in undergraduate medical education.